UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/516,257	02/29/2000	Arthur G. Doak	N-4699	1822

23456   7590   12/03/2002

WADDEY & PATTERSON
414 UNION STREET, SUITE 2020
BANK OF AMERICA PLAZA
NASHVILLE, TN 37219

EXAMINER
NGUYEN, TU T

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 12/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _16 September 2002_ .

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-3, 12-16, 22-26, 31-35, 38-61, 64 and 65_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-3, 12-16, 22-26, 31-35, 38-61, 64 and 65_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _4,5,6,7_ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

Detailed Office Action

Election/Restriction

Applicant's election without traverse of group III (claims 1-3,12-16,22-26,31-35,38-54,55-

58,59-61,64-65 in Paper No. 9 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,12,22-25,53,55-58,64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Bruner et al (6,369,882).

With respect to claim 1, Bruner discloses a method for sorting paper. The method

comprises steps: conveying 100, 110 (fig 7) the paper 102 (fig 1) through an inspection zone

116 (fig 7), analyzing the character of the paper (abstract), sorting the paper (abstract).

Bruner does not disclose analyzing the color paper or the glossy paper or the printed

material. However, determining the color or a glossy or the printed material paper would have

been known. It would have been obvious to modify Bruner's method with the known method

of determining the paper color or glossy or the printed material to sort a plurality kind of

papers without changing the setup.

With respect to claim 12, refer to discussion in claim 1 above.

With respect to claims 22-23,64-65, since Bruner discloses a sensor 16 (fig 1) for detecting the reflected signal, it would have been obvious a design choice to modify the sensor with a threaded irregular internal surface for defecting the light beam to improve the system performance. The modification involves only routine skill in the art.

With respect to claim 24, refer to discussion in claim 1 above. Further, Bruner does not disclose the speed of the convey. However, it would have been obvious a design choice to operate Bruner's system with different speed to facilitate the sorting.

With respect to claim 25, refer to discussion in claim 24 above for the speed of the convey.

With respect to claim 53, refer to discussion in claim 1 above. Further, Bruner discloses an array of sensor elements (column 11, lines 30-33).

With respect to claims 55-58, it would have been obvious a design choice to modify Bruner with a mirror to direct the light to different location or a transparent or reference wear cover to facilitate the sorting . The modification involves only routine skill in the art.

2

Claims 2-3,13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruner et al (6,369,882) in view of Takayama et al (6,373,575).

With respect to claims 2,13-14, Bruner does not explicitly disclose comparing the detected signal to a predetermined signal in the memory. Takayama discloses a method which compares the detected signal to a predetermined signal stored in the memory (abstract). It would have been obvious to combine Bruner with Takayama to compare the detected signal with the predetermined signal to classify the paper faster. Since Takayama discloses storing the predetermine value in the memory, Takayama inherently discloses a logic map.

With respect to claims 3,15-16, Takayama discloses a selector guide (abstract). Takayama does not disclose selecting a category of paper to be sorted. However, the skill artisan would have been motivated to modify Takayama for selecting a category of paper to be sorted to make the user fully control the category of paper to be sorted.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bruner et al (6,369,882) in view of Takayama et al (6,373,575) and Shakespeare et al (6,263,291).

With respect to claim 26, refer to discussion in claim 2 for comparing the reflected signal. Bruner does not disclose a plurality of separate source. Shakespeare discloses using a plurality sources (abstract). It would have been obvious to modify Bruner with Shakespeare to make the system more accurate.

Claims 31-35,38-49,51-52,54,59-61 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bruner (6,369,882) in view of Shakespeare et al (6,263,291).

With respect to claim 31, Bruner discloses a method for sorting paper. However, Bruner does not disclose using a plurality of separate beams and analyzing the color based upon a comparison of the reflected light. Shakespeare discloses a method for analyzing a color of an object. The method comprises: illuminating the object with at least three illumination bands singly (abstract), comparing the reflected light with a reference light (abstract). It would have been obvious to modify Bruner with Shakespeare to use a plurality of light sources to detect the color of the paper more efficient.

With respect to claims 32-33,41,46, Shakespeare discloses a plurality of beams (abstract). However, Shakespeare does not explicitly disclose a red, blue, green. Using a combination of red, blue, green for determining a color of paper would have been known. It would have been obvious to use the known red, blue, green light in Shakespeare's system to make the system more efficient.

With respect to claims 34-35,39-40,44-45,59-61, it would have been obvious a design choice to analyzing the reflected signal by computing the log slopes or computing the intensity of the combined reflectivity of red, green and blue light or averaging two reflected signal. Since the general conditions of the invention are disclosed by the prior art, modifying the way of computing the reflected light involves only routine skill in the art.

With respect to claim 38, the skill artisan would have been motivated to expose the

4

paper to two different sequences to make the system more accurate.

With respect to claims 42,47 Bruner discloses using an ultraviolet light (abstract). Bruner does not disclose an infrared light. Using an IR light would have been known. It would have been obvious to modify Bruner with a known IR to make the system safer to use.

With respect to claims 48-49, it would have been a design choice to modify Bruner with different ways of analyzing the reflected light, since the general conditions of the invention are disclosed by the prior art, modifying the prior art with different method of analyzing the reflected light involves only routine skill in the art.

With respect 50, Bruner discloses selecting the paper in a stream of waste paper (abstract).

With respect to claims 54, refer to discussion in claim 38 for the sequencing flashing and refer to claim 32 for the red, blue, green light.

With respect to claims 51-52, refer to discussion in claims 24-25 for the speed of the convey.

With respect to claim 43, refer to discussion in claim 31 for a plurality of source and

claim 38 for sequentially exposing the light to the paper.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T Nguyen whose telephone number is (703) 306-9185. The examiner can normally be reached on M-T 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (703) 308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Tu Tuan Nguyen

Patent Examiner TC 2877

11/30/02

6